

Investor Relations - Financials - Report to Investors

Liberty Media Corporation
Report to Investors
May, 1999

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Letter to Shareholders

Dear Fellow Shareholders:

We last issued a letter to Liberty Media Group shareholders in the spring of 1998 as part of the TCI Stockhold a tracking stock of TCI, most of our activities were concentrated in domestic cable and satellite programming market value of approximately \$13 billion. Much has changed in the past twelve months.

First, TCI was acquired by AT&T. In that transaction, TCI Ventures Group was folded into Liberty, and the ex tracking stock of AT&T. As a result, Liberty added large stakes in Sprint PCS, United Video Satellite Group, Inc Corporation and Tele-Communications International, Inc. (TINTA) to its existing portfolio. We also received \$ for certain TCI Ventures Group assets that were transferred to AT&T.

In separate transactions, Liberty acquired the 15 percent of TINTA that had been owned by the public and Un Magazine, changing its name to TV Guide, Inc. Liberty also agreed to acquire approximately 8 percent of The exchange for a combination of cash and our half interest in the Fox Sports regional sports networks, and we i Instrument to 21% percent. Finally, we agreed to contribute all of our assets related to interactive TV and Int and to change this subsidiary's name to Liberty Digital, Inc.

As of this writing, we have interests in a broad range of video programming, communications, technology and United States, Europe, South America and Asia. We have more than \$4 billion in cash and short-term investm approximately \$45 billion.

Despite the sweeping changes that these transactions have yielded in the scope and composition of our busin remains the same as it was when Liberty was established in 1991: to maximize the per share value of our equ year horizon.

Growth in Liberty's equity value results from the convergence of two forces:

Internal Growth: the underlying growth of our existing businesses and their ability to use scale, brand create new businesses; and

Strategic Opportunism: our efforts to identify and execute transactions that improve the value or reduce that add new businesses with attractive growth and strategic dynamics; or that optimize the efficiency resources.

Internal Growth

Liberty owns a unique set of assets. These businesses are leaders in their markets and they benefit from a host of and demographic trends. A few examples:

Time Warner, Inc., one of the largest media companies in the world, posted all-time record cash flow of \$4.1 billion for 1998, increases of 14% and 11%, respectively, over 1997.

Sprint PCS is the nation's largest and fastest growing PCS provider. Since the end of 1997, Sprint PCS customers have grown to 3.35 million and the number of metropolitan markets served has doubled to 280. During 1998, revenues increased 189% compared to 1997. This trend continued in the first quarter of 1999 with revenue growth of 189%.

TV Guide, Inc. markets and distributes products in the United States to over 100 million cable and satellite households. It also markets its products internationally in over 30 countries. TV Guide Magazine, TV Guide Channel, TV Guide Online are the largest print, electronic, interactive and Internet guidance products in the world.

Telewest Communications ended 1998 with 1.4 million residential and business customers, making it the largest cable service in the United Kingdom. Revenues grew by 40% in 1998 and cash flow increased by 194% to approximately \$100 million.

The above are all publicly traded entities which, in addition to internal growth, have also benefited from the rise of privately held assets. These privately held assets are well-managed, high-growth businesses that have also benefited from solid economic growth. Other privately held assets include Discovery Communications, Inc., Encore Media Group and QVC Inc.

Discovery owns four broadly distributed networks in the U.S., namely The Discovery Channel, The Learning Channel, The Travel Channel, as well as seven digital channels. It also operates additional networks which reach over 73 million households in 100 countries.

Consumer research consistently cites Discovery as one of the most recognized and respected brands in the U.S. Its brand makes Discovery an excellent platform for creating new channels and interactive services.

One of the most exciting projects under way at Discovery is the development of a new subsidiary called Discovery Health, which will focus on the delivery of health-related programming. This entity will be among the first to offer consumers full-service health-related programming. Today's consumers are bombarded by confusing and often contradictory information about health. At the same time, health care companies are continuously seeking more efficient and effective means of reaching their target audience. Discovery's consumer brand, its vast programming library and its excellent relationships with distributors and advertisers position it to meet the demands of both these groups.

Encore Media Group is the fastest growing provider of cable and satellite-delivered premium movie networks. Its domestic networks with 26 different feeds reach over 49 million pay units. Encore's services include the Encore Movie Channel, ten thematically programmed digital movie services and MOVIEplex, a "theme by day" channel. In 1998, it had a net income of \$100 million, compared with a loss of \$28 million in 1997.

With the benefit of digital technology, cable operators and DBS providers can position themselves as virtual video stores. The programming and everyday low pricing of the STARZ! and Encore services allows distributors to package these channels and other pay movie services such that movie viewers have practically the same level of choice and convenience as in a physical video store.

without the inconvenience of renting and returning.

As digital growth accelerates, Encore's unit growth will continue to increase. Encore already has agreements with major operators and many smaller operators to carry Encore's thematic multiplex services in new digital packages. Today, over 80 percent of cable homes as digital service becomes available.

QVC continued to break electronic retailing records in 1998. Sales at QVC increased by 15% in 1998 to over \$1 billion, with operating cash flow increasing by 28% to \$434 million. Over the past 10 years, QVC's revenue and operating cash flow have had annual growth rates of approximately 20% and 30%, respectively. Simply put, QVC's core domestic business and its international businesses have also enjoyed success. Operations in the United Kingdom have become profitable and are improving and approaching profitability.

QVC is also an Internet success story. QVC operates a retail website, iQVC, which is one of the fastest growing on the Internet. iQVC is open 24 hours a day, seven days a week for more than 100,000 products.

Liberty's attributed share of the operating cash flow of all its private assets increased by more than 100% in 1998, somewhat by the turnaround at Encore and we anticipate that our performance in 1999 will be more modest. Our private assets still should grow by approximately 30 percent this year — a very healthy increase by any standard.

Strategic Opportunism

While we are very pleased with the historical and prospective growth of our affiliated companies, as shareholders we want our value to grow faster than the combined rate of our assets. Accomplishing this goal requires us to manage our portfolio of our business interests at least as aggressively as the businesses themselves are managed.

Our management approach has three principal components. We actively seek acquisition or investment candidates that have growth prospects and, preferably, the potential to make our other assets more valuable. We seek opportunities to combine our business interests with transactions that will create economies of scale, reduce risk, improve liquidity or increase focus. Ideally, we achieve two or more of these objectives. Finally, we enhance the returns to our equity with transactions such as debt issuances and share repurchases. In the past several months, we have announced three very significant transactions that illustrate our approach to value creation and equity appreciation.

First, we agreed to purchase an 8 percent stake in News Corp. in exchange for \$695 million in cash and our 5 percent stake in Fox/Liberty regional sports networks. This transaction was attractive to us for four reasons. First, we purchased News Corp. stock that we felt was already undervalued, at a 20% percent discount to the trading price immediately following announcement. Second, we believe we received fair value for our joint venture interest. Third, we converted an illiquid partnership interest into a security that, if we desire, can be borrowed against or monetized. Fourth, because of the structure of the deal, we will retain the appreciation of our Fox Sports interest until we decide, if ever, to sell our newly acquired News Corp. stock in the market.

In other words, this deal met all of our criteria for creating shareholder value: buy low, sell high in exchange for a security that can be used to raise additional capital in the future and defer taxes as long as possible.

In our second transaction, we entered into a seven-year "cashless collar" with respect to 15 million of our 114 million shares of common stock. In effect, we purchased a put option that gives us the right to require our counterparty to buy the 15 million shares from us in seven years for \$67.45 per share. We simultaneously sold a call option giving the counterparty the right to buy 15 million shares from us in seven years for \$158.33 per share. The transaction was cashless because the cost of buying the put right was offset by the proceeds from selling the call right. By doing this, Liberty guaranteed that the assets involved would have at least \$1 billion of potential shifts in the stock market.

Our purpose in this transaction was to enable us to increase our debt. Because most of our businesses do not have significant cash flows, we are somewhat constrained in our ability to service debt. However, we recognize that using borrowed money to make investments is an effective means of increasing the returns on our equity. When planning to increase our debt level, we take the "cashless collar" — to ensure that we have the means available to repay the debt.

The third transaction was our agreement to contribute our interactive television and Internet content assets in of which we currently own 86 percent. Upon completion of this transaction, we will change TCI Music's name our ownership to approximately 94 percent.

This transaction fulfills several objectives. It will allow us to place these assets into a single public entity, the investors. It will allow us to form an entrepreneurial management team that is focused exclusively on developing opportunities within the field of interactive TV and Internet content. Finally, it will enable us to create a public company to the stocks of other Internet companies, giving us a viable currency for making acquisitions of businesses in which we responded quite well to this proposed transaction.

The Future

Our sole objective has always been to maximize the value of Liberty's stock. We pursue this goal with diligence. Liberty is managed by shareholders for the benefit of shareholders. Every corporate employee owns stock and shares in the success of our efforts. Every action we take in the future will be consistent with that goal.

Our strategy for this is straightforward. It starts with the robust growth potential of our diverse collection of entrepreneurially managed businesses. We leverage this growth potential with acquisitions and various forms of management.

For the first time in our history, Liberty has substantial cash resources. We intend to be patient, selective and disciplined. Our industry dynamics change very rapidly and we need to be able to take advantage of any opportunities that arise.

Acquisition candidates must meet certain core criteria. They must have the potential to be market leaders with a strong track record and a tradition of aggressive management. They must be businesses that will benefit in some way from our ownership, either by having the potential to profit from an important consumer or technological trend. Most importantly, we must be able to acquire them on terms that will result in above-average after-tax returns to our own equity. We generally seek to acquire a 25% stake and substantial influence over management and strategic direction.

Portfolio management will be designed to accomplish at least one of four broad objectives: creating scale economies; increasing market awareness or visibility of certain assets; reducing the risk profile of a business by combining it with another; or creating additional financial resources by converting an illiquid asset into a publicly traded security.

Capital structure management will be directed at taking advantage of the inherent value of our existing assets and, under the right circumstances, stock repurchases. This will likely mean increasing our debt. We will seek the lowest possible interest rates, but we will be conservative in how the debt is structured.

We are confident that our strategy can be an effective one. Our stock price increased by more than 90 percent compared with the S&P 500 which increased 31% and 27% in the same periods. While this confirms the effectiveness of our methods, we are not content to focus on our past successes. Rather, we use them to raise our expectations for the future.

One of Liberty's hallmarks since its inception has been a very small corporate staff. In March of 1998, we surpassed 100 employees per employee. Although our corporate staff has recently increased to 33 employees, our market value per employee is approximately \$1.4 billion.

Any discussion of Liberty's past, present or future would be incomplete without mentioning the instrumental role of John Malone. John is the chief architect and visionary of our Company. His fertile imagination, combined with his dedication to creating shareholder wealth are primary factors in our success.

On behalf of John and the entire Liberty corporate staff, I would like to thank you, our fellow shareholders, for your support and for the promises about its success in the future. But I can assure you that we will continue to concentrate the focus on the future.

our energy on increasing the value of our Company now and in the next millennium.

Very truly yours,

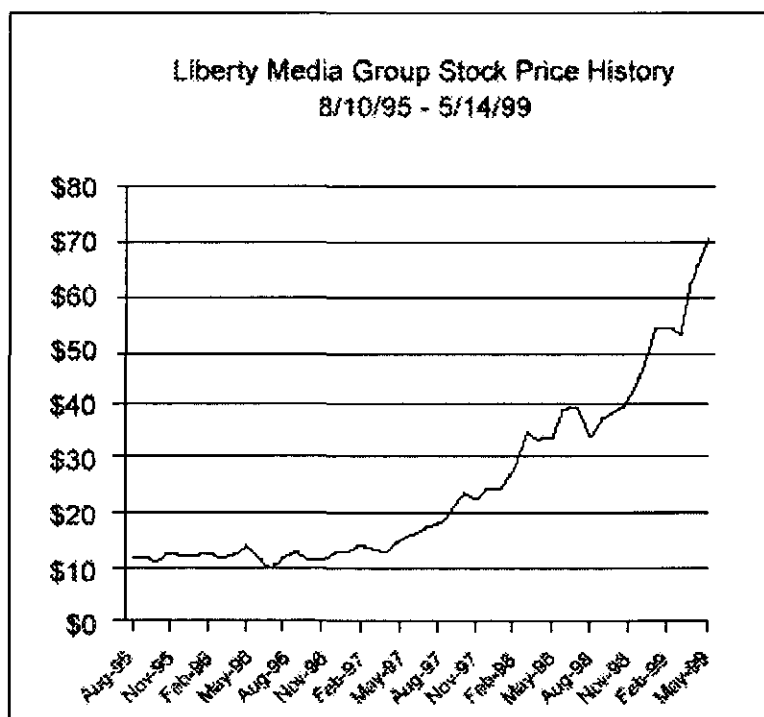


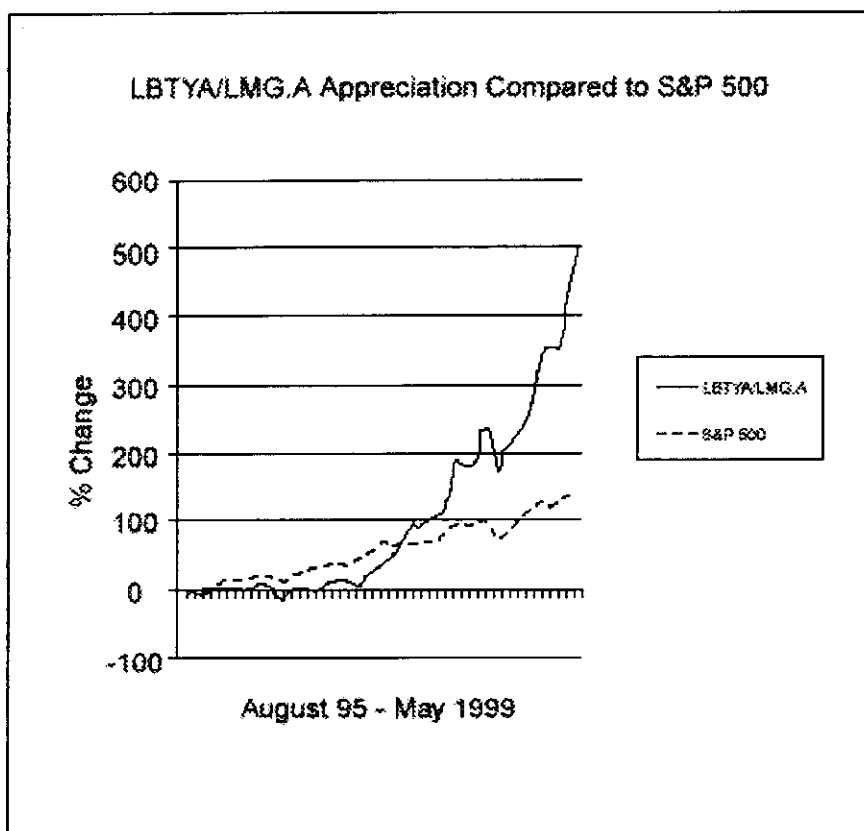
Robert R. Bennett
President & Chief Executive Officer
May 20, 1999

Stock Performance

On March 9, 1999, Tele-Communications, Inc. completed its merger with AT&T. Prior to the merger, Liberty B Common Stock were tracking stocks of TCI and traded on the Nasdaq Stock Market under the symbols LBT 1999, TCI Ventures Group was combined with Liberty Media Group. Upon completion of the AT&T merger an combination, each share of TCI Liberty Media Group Series A and Series B Common Stock was exchanged on new Liberty Media Group Class A and Class B Common Stock which are tracking stocks of AT&T. Each share o and Series B Common Stock was exchanged for 0.52 of a share of the new Liberty Media Group Class A and C Liberty Media Group Stock trades on the New York Stock Exchange under the symbols LMG.A and LMG.B.

The following graphs illustrate the performance of the Liberty Media Group Class A Common Stock since it wa August of 1995, and a comparison of the performance of the Liberty Media Group Class A Common Stock with 500.





Company Profile

Liberty Media holds interests in a broad range of video programming, communications, technology and Internet States, Europe, South America and Asia. Liberty Media's principal assets include interests in Encore Media Group Inc., Time Warner Inc., QVC Inc., USA Networks, Inc., Telewest Communications plc, TV Guide, Inc., General PCS Group and The News Corporation Limited (assuming completion of the proposed transaction to exchange Sports for an interest in News Corp.). Liberty Media Group also has interests in certain other domestic and international networks and businesses included in the table below.

The following table sets forth Liberty's assets that are held directly and indirectly through partnerships, joint ventures, investments and instruments convertible into common stock. Ownership percentages in the table are approximate and assume conversion to common stock by Liberty and, to the extent known by Liberty, other holders. In some cases, ownership is subject to buy/sell procedures, repurchase rights or, under certain circumstances, dilution.

CABLE, SATELLITE & BROADCAST TELEVISION NETWORKS

ENTITY	SUBSCRIBERS AT 3/31/99 (000's)	YEAR LAUNCHED	ATTRIBUTED OWNERSHIP AT 5/20/99

BET Holdings II, Inc.			35%
BET Cable Network	56,700	1980	
BET Action Pay-Per-View	8,700 ⁽¹⁾	1990	
BET on Jazz	4,500	1996	
Canales ñ	5 ⁽²⁾	1998	100%
Court TV	32,677	1991	50%
Discovery Communications, Inc.			49%
Discovery Channel	76,020	1985	
The Learning Channel	68,626	1980	
Animal Planet	47,948	1996	
Discovery People	10,000	1997	
Travel Channel	28,650	1987	
Discovery Digital Services	3,818 ⁽²⁾		
Discovery Civilization		1996	
Discovery Health		1998	
Discovery Home & Leisure		1996	
Discovery Kids		1996	
Discovery Science		1996	
Discovery Wings		1998	
Discovery en Español		1998	
Animal Planet Asia	411	1998	25%
Animal Planet Europe	7,673	1998	
Animal Planet Latin America	4,349	1998	25%
Discovery Asia	32,067	1994	
Discovery India	9,500	1996	

CABLE, SATELLITE & BROADCAST TELEVISION NETWORKS (Cont.)

ENTITY	SUBSCRIBERS AT 3/31/99 (000's)	YEAR LAUNCHED	ATTRIBUTED OWNERSHIP AT 5/20/99
Discovery Communications, Inc. (cont.)			
Discovery Japan ⁽³⁾	935	1996	
Discovery Europe	17,388	1989	
Discovery Turkey	600	1997	

Discovery Germany	341	1996	25%
Discovery Italy/Africa	849	1996	
Discovery Latin America	10,889	1996	
Discovery Latin America Kids Network	7,232	1996	
People & Arts (Latin America)	8,015	1995	25%
Discovery Channel Online	Online	1995	
Encore Media Group			100%
Encore	13,179	1991	
MOVIEplex	7,397	1995	
Thematic Multiplex (aggregate units)	19,826 ⁽²⁾	1994	
Love Stories			
Westerns			
Mystery			
Action			
True Stories			
WAM! America's Kidz Network			
STARZ!	9,160	1994	
STARZ! Multiplex (aggregate units)	5,310 ⁽²⁾		
STARZ! Theater		1996	
BET Movies/STARZ!		1997	88%
STARZ! Family		1999	
STARZ! cinema		1999	
E! Entertainment Television	54,702	1990	10%
Style	3,036	1998	
Flextech p.l.c. (UK)			37%
(LN ⁽⁴⁾ :FLXT)			
Bravo	4,822	1985	37%
Challenge TV	5,113	1993	37%
HSN Direct	N/A	1994	42%
KinderNet	5,751	1988	12%
Living	5,733	1993	37%
SMG	N/A	1957	7%
Trouble	4,807	1984	37%
TV Travel Shop	4,199	1998	37%
UK Arena (UKTV)	1,733	1997	18%
UK Gold (UKTV)	5,992	1992	18%
UK Gold Classics (UKTV)	439	1999	18%
UK Horizons (UKTV)	4,193	1997	18%
UK Style (UKTV)	1,788	1997	18%
UK Play (UKTV)	968	1998	18%

Fox Kids Worldwide, Inc.			(5)
International Channel	7,416	1990	90%

CABLE, SATELLITE & BROADCAST TELEVISION NETWORKS (Cont.)

ENTITY	SUBSCRIBERS AT 3/31/99 (000's)	YEAR LAUNCHED	ATTRIBUTED OWNERSHIP AT 5/20/99
Jupiter Programming Co., Ltd. (Japan)			50%
Cable Soft Network	2,136	1989	50%
CNBC Asia/Business News Japan	N/A	1997	10%
Golf Network	1,511	1996	35%
Discovery Japan	935	1996	49%
J-Sports	382	1998	67%
The Shop Channel	2,900	1996	41%
MacNeil/Lehrer Productions	N/A	N/A	67%
MultiTh matiques, S.A.			30%
Canal Jimmy (France)	2,079	1991	
Canal Jimmy (Italy)	419	1997	
Cin Cin mas (France)	663	1991	
Cin Cin mas (Italy)	157	1997	
Cin Classics (France)	598	1991	
Cin Classics (Spain)	152	1995	15%
Cin Classics (Italy)	157	1997	
Forum Plan te (France)	1,155	1997	
Plan te (France)	2,770	1988	
Plan te (Poland)	1,623	1996	
Plan te (Germany)	341	1997	
Plan te (Italy)	419	1997	
Seasons (France)	97	1996	
Seasons (Spain)	26	1997	
Seasons (Germany)	9	1997	
Seasons (Italy)	32	1997	
The News Corporation Limited ⁽⁶⁾			8% ⁽⁶⁾
(NYSE:NWS.A; ASX ⁽⁴⁾ :NCPDP)			

Odyssey	22,156	1988	33%
Primer S.C.A. (Argentina)			100%
America Sports	2,374	1990	
BIG	2,366	1992	
Canal a	1,578	1996	
Cineplatea	2,051	1997	
CV SAT	3,942	1988	
IDEAS	790	1991	
Magic Kids	3,875	1995	
P&E	790	1996	
The Premium Movie Partnership (Australia)	751	1995	20%
QVC Inc.			43%
QVC Network	65,386	1986	
QVC-The Shopping Channel (UK)	7,350	1993	
QVC-Germany	14,672	1996	
iQVC	Online	1995	

CABLE, SATELLITE & BROADCAST TELEVISION NETWORKS (Cont.)

ENTITY	SUBSCRIBERS AT 3/31/99 (000's)	YEAR LAUNCHED	ATTRIBUTED OWNERSHIP AT 5/20/99
Telemundo Network	(7)		50%
Telemundo Station Group	(8)		25%
Torneos y Competencias, S.A. (Argentina)	N/A	N/A	40%
Time Warner Inc. (NYSE: TWX) ⁽⁹⁾			9%

TV Guide, Inc.			44%
(Nasdaq: TVGIA)			
TV Guide Channel	49,964	1988	
TV Guide Interactive	(2)	1998	
TV Guide Sneak Prevue	34,278	1991	32%
UVTV	59,632 ⁽¹⁰⁾	N/A	
Superstar	1,103	N/A	
TV Guide Magazine	11,800 ⁽¹¹⁾	N/A	
TV Guide Online	Online		
The Television Games Network	N/A	1999	
USA Networks, Inc. (Nasdaq: USAI)			21% ⁽¹²⁾
HSN	71,061 ⁽¹⁵⁾	1985	
America's Store	9,342 ⁽¹³⁾	1986	
ISN	Online	1995	
HSN en Español	2,700	1998	11%
HOT (Germany)	19,443	1996	9%
Shop Channel (Japan)	2,900	1996	⁽³⁾
SciFi Channel	54,449	1992	
USA Network	75,317	1980	
USA Broadcasting	⁽¹⁴⁾	1986	
TicketMaster	N/A		
Studios USA	N/A		
TicketMaster City Search	Online	1998	14%
(Nasdaq: TMCS)			

INTERNET/INTERACTIVE TELEVISION SERVICES

ENTITY	DESCRIPTION	ATTRIBUTED OWNERSHIP AT 5/20/99
Liberty Digital, Inc.		
TCI Music, Inc. (Nasdaq: TUNE/TUNEP)		94% ⁽¹⁵⁾
DMX	Programs, markets, and distributes the premium	
	Digital audio service, Digital Music Express	
THE BOX	Interactive music video television networks	

THE BOX SET		
THE BOX—International		
SonicNet	Internet music network, consisting of music	
Addicted to Noise	Web sites	
Streamland		
AT&T Access Agreement	Rights to provide interactive networks to of AT&T cable systems	100%
Academic Systems Corporation	Provider of higher education multimedia instruction manuals	5%
ACTV, Inc. (Nasdaq: IATV)	Producer of tools for interactive programming For television and internet platforms	12% ⁽¹⁶⁾
Digital Health Group	Health and wellness content development	100%
drugstore.com, Inc.	Online pharmacy and sundries	2%
HomeGrocer.com, Inc.	Online grocery store	2%
iBeam Broadcasting Corporation	Satellite delivery of streaming media from programmers to Internet Service Providers	7%
Interactive Pictures Corporation	Interactive photographic technology for the Internet	4%
iVillage, Inc. (Nasdaq:IVIL)	Internet and on-line provider of branded communications and information services for adult women	3%
KPCB Java Fund, L.P.	Investor in Java application development	5%
The Lightspan Partnership, Inc.	Developer of educational programming	8%
priceline.com Incorporated (Nasdaq:PCLN)	E-commerce service allowing consumers to make offers on products and services	2%

Sportsline USA, Inc. (Nasdaq: SPLN)	Internet provider of branded interactive sports information, programming and merchandise	3%
Total Entertainment Network, Inc.	Online game service targeting family Internet game players	19%

CABLE, TELEPHONY & SATELLITE

ENTITY	HOMES IN SERVICE AREA 3/31/99⁽¹⁷⁾ (000)	HOMES PASSED 3/31/99⁽¹⁸⁾ (000)	BASIC SUBS 3/31/99⁽¹⁹⁾ (000)	ATTRIBUTED OWNERSHIP AT 5/20/99
Bresnan International Partners (Chile) L.P.				100%
Metrópolis-Intercom, S.A.	1,600	1,045	278	30%
Cablevisión S.A. (Argentina)	4,000	3,350	1,463	28%
Jupiter Telecommunications Co., Ltd. (Japan)	2,786	1,655	228	40%
Princes Holdings Limited (Ireland)	490	379	153	50%
Sky Latin America ⁽²⁰⁾			697	10%
Sprint PCS Group (NYSE: PCS)				24% ⁽²¹⁾

TCI Cablevisión of Puerto Rico, Inc.	392	264	96	100%
Telewest Communications plc (UK)	6,074	4,410	1,075	22%
(LN ₍₄₎ : TWT) (Nasdaq: TWSTY)				

TECHNOLOGY & MANUFACTURING

ENTITY	DESCRIPTION	ATTRIBUTED OWNERSHIP AT 5/20/99
Antec Corporation (Nasdaq: ANTC)	Manufacturer of products for hybrid fiber/coaxial broadband networks	19%
General Instrument Corporation (NYSE: GIC)	World-wide supplier of systems and equipment for high performance networks delivering video, voice and data/Internet services	21% ₍₂₂₎

PUBLIC STOCK INVESTMENTS

COMPANY	CLASS	SHARES AT 5/20/99
ACTV, Inc. (Nasdaq: IATV)	Common Warrants	5,500,000 ₍₁₆₎ 7,500,000 ₍₂₃₎
Antec Corporation (Nasdaq: ANTC)	Common Options	6,827,000 854,000 ₍₂₅₎
The Associated Group, Inc. (Nasdaq: AGRPA/AGRPB)	Class A Common Class B Common	45,000 45,000
Cablevision Systems Corporation (AMEX: CVC)	Common	1,040,000
Flextech p.l.c. (LN: FLXT)	Ordinary	57,889,032

General Instrument Corporation (NYSE: GIC)	Common Warrants	31,356,000 21,356,000 ⁽²²⁾
iVillage, Inc. (Nasdaq:IVIL)	Common	753,864
The News Corporation Limited (NYSE: NWS.A)(ASX: NCPDP)	Non-Voting ADRs	79,886,111 ⁽⁶⁾
priceline.com Incorporated	Common	3,125,000
Sportsline USA, Inc. (Nasdaq: SPLN)	Common	533,334
Sprint PCS Group (NYSE: PCS)	Series 2 Common Warrants	98,563,924 ⁽²⁰⁾ 6,291,315 ⁽²⁶⁾ 108,865,890 ⁽²⁴⁾
TCI Music, Inc. (Nasdaq: TUNE/TUNEP)	A Common B Common	11,704,471 191,255,360 ⁽¹⁵⁾ 203,212,556 ⁽¹⁵⁾⁽²⁴⁾
Telewest Communications plc (Nasdaq: TWSTY)(LN: TWT)	ADRs	46,343,896 ⁽²⁸⁾
Time Warner Inc. (NYSE: TWX)	Series LMCN-V Common	114,123,884 ⁽²⁴⁾
TV Guide, Inc. (Nasdaq: TVGIA)	A Common B Common	29,036,520 37,496,588
USA Networks, Inc. (Nasdaq: USAI)	Common B Common	43,517,981 ⁽¹²⁾ 25,599,998 69,117,979 ⁽²⁴⁾

(1) Number of subscribers to whom service is available.

(2) Digital services.

- (3) Liberty's attributed ownership interest in this entity is listed under Jupiter Programming Co., Ltd. of International, Inc. owns 50%.
- (4) LN – London Stock Exchange; ASX – Australian Stock Exchange.
- (5) Liberty's interest consists of shares of 30-year 9% preferred stock which have a stated aggregate value convertible into common stock.
- (6) Assumes completion of proposed transactions in which (i) News Corp. will acquire Liberty's 50% interest in exchange for approximately 51.8 million shares of non-voting News Corp. American Depositary Receipt agreed to purchase 28.1 million additional non-voting ADRs from News Corp. for \$695 million. Both transactions to be completed by the end of June upon fulfillment of certain customary conditions, including regulatory and shareholder approvals in the United States, Canada, the United Kingdom, Australia, Latin America and the Pacific Rim. Liberty's networks, FX, FXM, Fox Family, Fox News and the Fox/Liberty regional and national sports networks. Networks include Fox Broadcasting Network, 20th Century Fox, satellite platforms B Sky B in the United Kingdom and the publication of newspapers, magazines and books.
- (7) Telemundo Network is a 24-hour broadcast network serving 61 markets in the United States, including Puerto Rico.
- (8) Telemundo Station Group owns and operates eight full power UHF broadcast stations and 15 low power stations in some of the largest Hispanic markets in the United States and Puerto Rico.
- (9) Time Warner has interests in filmed entertainment; television production; television broadcasting; radio broadcasting; publishing; book and magazine publishing; cable television systems reaching over 12 million subscribers; and other programming which includes the following networks; CNN, Cartoon Network, Headline News, TNT, Turner Superstation, CNNfn, CNN/SI, CNN International, TNT, Latin America, Cartoon Network Latin America, TNT and Cartoon Network Asia, HBO, Cinemax, Comedy Central, HBO Ole, HBO Asia, TVKO and WB Television.
- (10) Aggregate number of units. UPTV uplinks three superstations (WGN, WPIX, KTLA) and six Denver households subscribing to six services would be counted as six "units."
- (11) Magazine circulation – includes subscription and newsstand distribution.
- (12) Liberty owns direct and indirect interests in various USAI and Home Shopping Network, Inc. securities which have been exchanged for USAI common stock. Assuming the conversion or exchange of such securities, the consolidated assets of the securities owned by Universal Studios, Inc. and certain of its affiliates for USAI common stock Liberty would own.
- (13) Includes broadcast households and cable subscribers.
- (14) A group of UHF and low power television stations which operate in 12 of the country's top 22 broadcast markets and the top 10 markets which reach approximately 31% of TV households in the U.S.
- (15) Liberty has proposed a transaction between Liberty and TCI Music whereby Liberty would contribute its owned internet and interactive television assets to TCI Music in exchange for approximately 128.8 million shares of TCI Music Series B common stock, increasing Liberty's ownership of TCI Music from 86% to 94%. Upon completion of the transaction, TCI Music would change its name to Liberty Digital, Inc. The assets listed in this section assume completion of the transaction subject to approval of the TCI Music shareholders and receipt of an opinion from TCI Music's financial advisor that the transaction is fair to the TCI Music stockholders (other than Liberty and its affiliates) from a financial perspective.
- (16) Liberty has agreed to exercise existing warrants to purchase 2,500,000 shares of ACTV common stock.

shares of common stock, which transactions are subject to regulatory approval. Liberty will also receive additional 7,500,000 shares of common stock. Assuming completion of the current warrant exercise and shares, Liberty would own approximately 12% of ACTV. Exercise of the additional warrants would bring approximately 25%.

(17) Homes in Service Area: The number of homes to which the relevant operating company is permitted. Not all service areas are granted exclusively to the respective operating company.

(18) Homes Passed: Homes that can be connected to a cable distribution system without further extension.

(19) Basic Subscribers: A subscriber to a cable or other television distribution system who receives the service and is usually charged a flat monthly rate for a specific number of channels.

(20) Sky Latin America ("Sky") is a satellite-delivered television platform currently serving Mexico, Brazil and Argentina.

(21) Less than 1% of voting power. Liberty holds securities of Sprint which are exercisable for or convertible into common stock.

(22) In addition to its common stock holdings in GI, Liberty owns warrants to purchase approximately 4 million shares of GI common stock at \$14.25 per share, subject to certain vesting requirements. Warrants to purchase 4 million shares have vested. The 21% ownership interest assumes exercise of all vested warrants.

(23) Options exercisable at prices ranging from \$8 to \$15 over a five-year period.

(24) Common equivalent shares.

(25) Options with an average exercise price of \$6.86.

(26) Warrants exercisable at \$24.02; expire 11/13/03.

(27) \$123,314,991 face value convertible at \$30.75 into shares of Series 2 PCS Stock.

(28) Telewest ADRs, represent 1/10th of the ordinary shares which trade on the London Stock Exchange.

Financial Information

On March 9, 1999, AT&T acquired Tele-Communications, Inc. by merger. In conjunction with the completion of the merger, the Liberty Media Group and the TCI Ventures Group were combined. Immediately prior to the closing of the merger, \$5.5 billion in cash TCI Ventures transferred to the TCI Group its interest in At Home Corporation, National Digital Telecommunications, Inc. and approximately 47 million shares of AT&T common stock.

The results of the combined Liberty/Ventures Group for the year ended 1998 are included in the AT&T Form 8-K filed with the Securities and Exchange Commission on March 22, 1999. The results of the Liberty Media Group for the first quarter of 1999 are included in the AT&T Form 10-Q which was filed with the Securities and Exchange Commission on May 17, 1999. These documents can be obtained without charge by contacting Liberty's Transfer Agent, EquiServe, whose address is listed on the back cover of Liberty's Web site at www.libertymedia.com. Liberty's press releases which provide additional information regarding the first quarter 1999 results can also be obtained by accessing Liberty's Web site.

Corporate Data

Board of Directors

Officers

Corporate Headquarters

John C. Malone
Chairman of the Board
Liberty Media Corporation

Robert R. Bennett
President and
Chief Executive Officer
Liberty Media Corporation

Paul A. Gould
Managing Director
Allen & Company

Leo J. Hindery, Jr.
President and
Chief Executive Officer
AT&T Broadband and
Internet Services

Gary S. Howard
Executive Vice President and
Chief Operating Officer
Liberty Media Corporation

Jerome H. Kern
Chairman
Linkshare Corporation

John C. Petrillo
Executive Vice President
AT&T Corp.

Larry E. Romrell
Consultant

Daniel E. Somers
Senior Executive Vice President
and Chief Financial Officer
AT&T Corp.

John C. Malone
Chairman of the Board

Robert R. Bennett
President and
Chief Executive Officer

Gary S. Howard
Executive Vice President and
Chief Operating Officer

David B. Koff
Senior Vice President

Charles Y. Tanabe
Senior Vice President
and General Counsel

Peter N. Zolintakis
Senior Vice President

David Beddow
Vice President

Gary B. Blaylock
Vice President

Vivian J. Carr
Vice President and
Secretary

Kathryn S. Douglass
Vice President and
Controller

David J.A. Flowers
Vice President and
Treasurer

David A. Jensen
Vice President

9197 South Peoria Street
Englewood, CO 80112
(720) 875-5400

Stock Information

Liberty Media Group Class A and
Class B Common Stock
(ticker symbols LMG.A and
LMG.B) are listed on the New
York Stock Exchange.

CUSIP Numbers

LMG.A—001957 20 8
LMG.B—001957 30 7

Transfer Agent

Liberty Shareholder Services
c/o Equiserve
P.O. Box 8035
Phone: 781-575-4724
Fax: 781-828-8813

Investor Relations

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Julie Gleichmann
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julie@libertymedia.com

Liberty on the Internet

Visit Liberty's Web site at
www.libertymedia.com

Financial Statements

Liberty Media Group financial
statements are filed with the
Securities and Exchange
Commission by AT&T Corp.
Copies of these financial
statements can be obtained by
contacting the Transfer Agent or
through Liberty's Web site.

**9197 South Peoria Street
Englewood, CO 80112
720.875.5400
www.libertymedia.com**

Investor Relations - Liberty Affiliate List

Liberty Media holds interests in a broad range of video programming, communications, technology and Internet businesses in the United States, Europe, South America and Asia. Liberty Media's principal assets include interests in Encore Media Group, Discovery Communications, Inc., Time Warner Inc., QVC, Inc., USA Networks, Inc., Telewest Communications plc, TV Guide, Inc., General Instrument Corporation, Sprint PCS Group and The News Corporation Limited. Liberty Media Group also has interests in certain other domestic and international programming networks and businesses included in the table below.

The following table sets forth Liberty's assets that are held directly and indirectly through partnerships, joint ventures, common stock investments and instruments convertible into common stock. Ownership percentages in the table are approximate and, where applicable, assume conversion to common stock by Liberty and, to the extent known by Liberty, other holders. In some cases, Liberty's interest may be subject to buy/sell procedures, repurchase rights or, under certain circumstances, dilution.

Select any one of our affiliates in this list to view ownership and operations information.

Cable, Satellite & Broadcast Television Networks

[BET Holdings II, Inc.](#)
[Canales ñ](#)
[Court TV](#)
[Discovery Communications, Inc.](#)
[Encore Media Group](#)
[E! Entertainment Television](#)
[Flextech p.l.c. \(UK\)](#)
[Fox Kids Worldwide, Inc.](#)
[International Channel](#)
[Jupiter Programming Co., Ltd.](#)
[MacNeill/Lehrer Productions](#)
[MultiThématiques, S.A.](#)
[The News Corporation Limited](#)
[Odyssey](#)
[Pramer S.C.A. \(Argentina\)](#)
[The Premium Movie Partnership \(Australia\)](#)
[QVC Inc.](#)
[Telemundo Network](#)
[Telemundo Station Group](#)
[Time Warner Inc.](#)
[TV Guide, Inc.](#)
[Torneos y Competencias, S.A.](#)
[USA Networks, Inc. \(Nasdaq: USAI\)](#)

Internet/Interactive Television Services

[Liberty Digital, Inc.](#)

[AT&T Access Agreement](#)
[Academic Systems](#)

[ACTV, Inc.](#)
[Digital Health Group](#)
[drugstore.com, Inc.](#)
[HomeGrocer.com, Inc.](#)
[iBeam Broadcasting Corporation](#)
[Interactive Pictures Corporation](#)
[iVillage, Inc.](#)
[KPCB Java Fund, L.P.](#)
[The Lightspan Partnership, Inc.](#)
[priceline.com Incorporated](#)
[Quokka Sports, Inc. Incorporated](#)
[Sportsline, USA, Inc.](#)
[TCI Music, Inc.](#)
[TIVO, Inc.](#)
[Total Entertainment Network, Inc.](#)

Cable, Telephony & Satellite

[Bresnan International Partners](#)
[Cablevisión S.A.](#)
[Jupiter Telecommunications Co., Ltd.](#)
[Princes Holdings Limited](#)
[Sky Latin America](#)
[Sprint PCS Group](#)
[TCI Cablevisión of Puerto Rico, Inc.](#)
[Telewest Communications plc](#)

Technology

[Antec Corporation](#)
[General Instrument Corporation](#)

Company Class Shares

Footnotes

Satellite & Broadcasting Television Networks

ENTITY	SUBSCRIBERS AT 6/30/99 (000's)	YEAR LAUNCHED	ATTRIBUTED OWNERSHIP AT 8/15/99
BET Holdings II, Inc.			35%
BET Cable Network	55,792	1980	
BET Action Pay-Per-View	10,793 ⁽¹⁾	1990	
BET on Jazz	1,797	1996	
Canales ñ	9 ⁽²⁾	1998	100%
Court TV	33,697	1991	50%
Discovery Communications, Inc.			49%
Discovery Channel	76,303	1985	
The Learning Channel	69,494	1980	
Animal Planet	50,054	1996	
Discovery People	10,000	1997	
Travel Channel	30,911	1987	
Discovery Digital Services	5,222 ⁽²⁾		
Discovery Civilization		1996	
Discovery Health		1998	
Discovery Home & Leisure		1996	
Discovery Kids		1996	
Discovery Science		1996	
Discovery Wings		1998	
Discovery en Español		1998	
Discovery Communications, Inc. (Cont.)			49%
Animal Planet Asia	476	1998	25%
Animal Planet Europe	5,166	1998	
Animal Planet Latin America	5,826	1998	25%
Discovery Asia	33,520	1994	
Discovery India	9,500	1996	
Discovery Japan ⁽³⁾	1,153	1996	
Discovery Europe	18,088	1989	
Discovery Turkey	600	1997	
Discovery Germany	386	1996	25%
Discovery Italy/Africa	985	1996	
Discovery Latin America	11,209	1996	
Discovery Latin America Kids Network	7,723	1996	
People & Arts (Latin America)	8,648	1995	25%
Discovery Channel Online	Online	1995	

Satellite & Broadcasting Television Networks (Cont.)

ENTITY	SUBSCRIBERS AT 6/30/99 (000's)	YEAR LAUNCHED	ATTRIBUTED OWNERSHIP AT 8/15/99
Encore Media Group			100%
Encore	13,366	1991	
MOVIEplex	7,620	1995	
Thematic Multiplex (aggregate units)	22,137 ⁽²⁾	1994	
Love Stories			
Westerns			
Mystery			
Action			
True Stories			
WAM! America's Kidz Network			
STARZ!	9,543	1994	
STARZ! Multiplex (aggregate units)	5,557 ⁽²⁾		
STARZ! Theater		1996	
BET Movies/STARZ!		1997	88%
STARZ! Family		1999	
STARZ! cinema		1999	
E! Entertainment Television	55,797	1990	10%
Style	3,135	1998	
Flextech p.l.c. (UK) (LN⁽⁴⁾: FLXT)			37%
Bravo	4,787	1985	37%
Challenge TV	5,048	1993	37%
HSN Direct	N/A	1994	42%
KinderNet	5,751	1988	12%
Living	5,722	1993	37%
SMG	N/A	1957	7%
Trouble	4,768	1984	37%
TV Travel Shop	4,755	1998	37%
UK Arena (UKTV)	1,983	1997	18%
UK Gold (UKTV)	5,953	1992	18%
UK Gold Classics (UKTV)	736	1999	18%
UK Horizons (UKTV)	4,268	1997	18%
UK Style (UKTV)	2,038	1997	18%
UK Play (UKTV)	1,256	1998	18%
Fox Kids Worldwide, Inc.			(5)

International Channel	8,090	1990	90%
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Satellite & Broadcasting Television Networks (Cont.)

ENTITY	SUBSCRIBERS AT 6/30/99 (000's)	YEAR LAUNCHED	ATTRIBUTED OWNERSHIP AT 8/15/99
Jupiter Programming Co., Ltd. (Japan)			50%
Cable Soft Network	2,208	1989	50%
CNBC Asia/Business News Japan	N/A	1997	10%
Golf Network	1,660	1996	44%
Discovery Japan	1,153	1996	49%
J-Sports	563	1998	66%
The Shop Channel	2,900	1996	41%
MacNeil/Lehrer Productions	N/A	N/A	67%
MultiThématiques, S.A.			30%
Canal Jimmy (France)	2,095	1991	
Canal Jimmy (Italy)	451	1997	
Ciné Cinémas (France)	676	1991	
Ciné Cinémas (Italy)	164	1997	
Ciné Classics (France)	603	1991	
Ciné Classics (Spain)	165	1995	15%
Ciné Classics (Italy)	164	1997	
Forum Planète (France)	1,171	1997	
Planète (France)	2,774	1988	
Planète (Poland)	1,683	1996	
Planète (Germany)	369	1997	
Planète (Italy)	451	1997	
Seasons (France)	99	1996	
Seasons (Spain)	27	1997	
Seasons (Germany)	11	1997	
Seasons (Italy)	33	1997	
The News Corporation Limited ⁽⁶⁾ (NYSE:NWS.A; ASX⁽⁴⁾: NCPDP)			8% ⁽⁶⁾
Odyssey	27,178	1988	33%
Pramer S.C.A. (Argentina)			100%
America Sports	2,367	1990	
Big Channel	2,359	1992	
Canal a	1,573	1996	
Cineplaneta	2,044	1997	

CV SAT	3,930	1988
Ideas	788	1991
Magic Kids	3,863	1995
P&E	788	1996

Satellite & Broadcasting Television Networks (Cont.)

ENTITY	SUBSCRIBERS AT 6/30/99 (000's)	YEAR LAUNCHED	ATTRIBUTED OWNERSHIP AT 8/15/99
The Premium Movie Partnership (Australia)	787	1995	20%
QVC Inc.			43%
QVC Network	66,065	1986	
QVC-The Shopping Channel (UK)	7,817	1993	
QVC-Germany	14,994	1996	
IQVC	Online	1995	
Telemundo Network	(7)		50%
Telemundo Station Group	(8)		25%
Time Warner Inc. (NYSE: TWX)⁽⁹⁾			9%
Torneos y Competencias, S.A. (Argentina)	N/A	N/A	40%
TV Guide, Inc. (Nasdaq: TVGIA)			44%
TV Guide Channel	49,418	1988	
TV Guide Interactive	(2)	1998	
TV Guide Sneak Prevue	33,298	1991	32%
UVTV	59,587 ⁽¹⁰⁾	N/A	
Superstar	1,053	N/A	35%
TV Guide Magazine	11,706 ⁽¹¹⁾	N/A	
TV Guide Online	Online		
The Television Games Network	N/A	1999	43%
USA Networks, Inc. (Nasdaq: USAI)			21% ⁽¹²⁾
HSN	72,700 ⁽¹³⁾	1985	
America's Store	9,300 ⁽¹³⁾	1986	
ISN	Online	1995	
HSN en Espanol	2,600	1998	11%
HOT (Germany)	20,600	1996	9%
Shop Channel (Japan)	2,900	1996	(3)
SciFi Channel	55,900	1992	
USA Network	75,700	1980	

USA Broadcasting	37,409 ⁽¹⁴⁾	1986	
TicketMaster	N/A		
Studios USA	N/A		
USA Films	N/A		
Hotel Reservations Network	Online	1991	
TicketMaster City Search (Nasdaq: TMCS)	Online	1998	11%

Internet/Interactive Television Services Liberty Digital, Inc.

ENTITY	DESCRIPTION	ATTRIBUTED OWNERSHIP AT 8/15/99
AT&T Access Agreement	Rights to provide interactive networks to AT&T cable systems	100%
Academic Systems Corporation	Provider of higher education multimedia instruction manuals	5%
ACTV, Inc. (Nasdaq: IATV)	Producer of tools for interactive programming for television and internet platforms	12% ⁽¹⁶⁾
Digital Health Group	Health and wellness content development	100%
drugstore.com, Inc. (Nasdaq: DSCM)	Online pharmacy and sundries	1%
HomeGrocer.com, Inc.	Online grocery store	2%
iBeam Broadcasting Corporation	Satellite delivery of streaming media from programmers to Internet Service Providers	7%
Interactive Pictures Corporation (Nasdaq: IPDX)	Interactive photographic technology for the Internet	4%
iVillage, Inc. (Nasdaq: IVIL)	Internet and on-line provider of branded communications and information services for adult women	3%
KPCB Java Fund, L.P.	Investor in Java application development	5%
The Lightspan Partnership, Inc.	Developer of educational programming	8%
priceline.com Incorporated (Nasdaq: PCLN)	E-commerce services allowing consumers to make offers on products and services	2%
Quokka Sports, Inc.	Internet provider of live digital sports entertainment	3%
Sportsline USA, Inc. (Nasdaq: SPLN)	Internet provider of branded interactive sports information, programming and merchandise	3%
TCI Music, Inc. (Nasdaq: TUNE/TUNEP)		95% ⁽¹⁵⁾
DMX	Programs, markets, and distributes the premium Digital audio services, Digital Music Express	
MTVN Online	Internet music venture	10%

TIVO Inc.	Producer of technology which allows customers to customize television viewing	1%
Total Entertainment Network, Inc.	Online game service targeting family Internet game players	19%

Cable, Telephony & Satellite

ENTITY	HOMES IN SERVICE AREA 6/30/99 ⁽¹⁷⁾ (000)	HOMES PASSED 6/30/99 (18) (000)	BASIC SUBS 6/30/99 (19) (000)	ATTRIBUTED OWNERSHIP AT 8/15/99
Bresnan International Partners (Chile) L.P.				100%
Metrópolis-Intercom, S.A.	1,600	1,068	273	30%
Cablevisión S.A. (Argentina)	4,000	3,374	1,451	28%
Jupiter Telecommunications Co., Ltd. (Japan)	2,697	1,743	253	40%
Princes Holdings Limited (Ireland)	490	380	155	50%
Sky Latin America ⁽²⁰⁾			761	10%
Sprint PCS Group (NYSE: PCS)				24% ⁽²¹⁾
TCI Cablevisión of Puerto Rico, Inc.	392	264	103	100%
Telewest Communications plc (UK) (LN⁽⁴⁾: TWT) (Nasdaq: TWSTY)	6,074	4,414	1,101	22%

Technology & Manufacturing

ENTITY	DESCRIPTION	ATTRIBUTED OWNERSHIP AT 8/15/99
Antec Corporation (Nasdaq: ANTC)	Manufacturer of products for hybrid fiber/coaxial broadband networks	19%
General Instrument Corporation (NYSE: GIC)	World-wide supplier of systems and equipment for high performance networks delivering video, voice and data/Internet services	21% ⁽²²⁾

Public Stock Investments

COMPANY	CLASS	SHARES AT 8/15/99
ACTV, Inc. (Nasdaq: IATV)	Common Warrants	5,500,000 <u>7,500,000</u> 13,000,000 ⁽²⁴⁾
Antec Corporation (Nasdaq: ANTC)	Common Options	6,827,000 854,000 ⁽²⁵⁾
The Associated Group, Inc. (Nasdaq: AGRPA/AGRPB)	Class A Common Class B Common	45,000 ⁽²⁶⁾ 45,000
Cablevision Systems Corporation (AMEX: CVC)	Common	1,040,000
Flextech p.l.c. (LN: FLXT)	Ordinary	57,889,032

General Instrument Corporation (NYSE: GIC)	Common Warrants	31,356,000
		<u>21,356,000⁽²²⁾</u>
		52,712,000 ⁽²⁴⁾
Drugstore.com, Inc. (Nasdaq:DSCM)	Common	319,489
Interactive Pictures Corporation (Nasdaq: IPIX)	Common	649,027
iVillage, Inc. (Nasdaq:IVIL)	Common	753,864
The News Corporation Limited (NYSE:NWS.A)(ASX:NCPDP)	Non-Voting ADR's	82,675,187
priceline.com Incorporated	Common	3,125,000
Sportsline USA, Inc. (Nasdaq: SPLN)	Common	533,334
Sprint PCS Group (NYSE: PCS)		98,563,924
	Series 2 Common	6,291,315 ⁽²⁸⁾
	Warrants	<u>4,010,651⁽²⁷⁾</u>
	Convertible Preferred	108,865,890 ⁽²⁴⁾
TCI Music, Inc. (Nasdaq: TUNE/TUNEP)		11,957,196
	A Common	171,950,107 ⁽¹⁵⁾
	B Common	<u>150,000⁽¹⁵⁾</u>
	Preferred	209,658,376 ⁽¹⁵⁾⁽²⁴⁾
Telewest Communications plc (Nasdaq: TWSTY) (LN: TWT)	ADR'S	46,343,896 ⁽²⁹⁾
Time Warner Inc. (NYSE:TWX)	Series LMCN-V Common	114,123,884 ⁽²⁴⁾
TV Guide, Inc. (Nasdaq:TVGIA)		29,036,520
	A Common	<u>37,496,588</u>
	B Common	66,533,108 ⁽²⁴⁾
USA Networks, Inc. (Nasdaq: USAI)		47,156,626 ⁽¹²⁾
	Common	<u>25,599,998</u>
	B Common	72,756,624 ⁽²⁴⁾

FOOTNOTES

- (1) Number of subscribers to whom service is available.
- (2) Digital services.
- (3) (3) Liberty's attributed ownership interest in this entity is listed under Jupiter Programming Co., Ltd. of which Liberty Media International, Inc. owns 50%.
- (4) LN - London Stock Exchange; ASX - Australian Stock Exchange.
- (5) Liberty's interest consists of shares of 30-year 9% preferred stock which have a stated aggregate value of \$345 million and are not convertible into common stock.
- (6) On July 15, 1999 transactions were completed in which (i) News Corp. acquired Liberty's 50% interest in Fox/Liberty Sports in exchange for approximately 51.8 million shares of non-voting News Corp. American Depositary Receipts ("ADRs"); and (ii) Liberty purchased 28.1 million additional non-voting ADRs from News Corp. for \$695 million. News Corp. has operations in the United States, Canada, the United Kingdom, Australia, Latin America and the Pacific Basin. These include U.S. cable networks, FX, FXM, Fox Family, Fox News and the Fox/Liberty regional and national sports networks. News Corp.'s businesses also include Fox Broadcasting Network, 20th Century Fox, satellite platforms B Sky B in the United Kingdom and J Sky B in Japan, and the publication of newspapers, magazines and books.
- (7) Telemundo Network is a 24-hour broadcast network serving 61 markets in the United States, including the 37 largest Hispanic markets.
- (8) Telemundo Station Group owns and operates eight full power UHF broadcast stations and 15 low power television stations serving some of the largest Hispanic markets in the United States and Puerto Rico.
- (9) Time Warner has interests in filmed entertainment; television production, television broadcasting, recorded music and music publishing; book and magazine publishing; cable television systems reaching over 12 million subscribers; and cable television programming which includes the following networks; CNN, Cartoon Network, Headline News, TNT, Turner Classic Movies, TBS Superstation, CNNfn, CNN/SI, CNN International, TNT Latin America, Cartoon Network Latin America, TNT & Cartoon Network Europe, TNT and Cartoon Network Asia, HBO, Cinemax, Comedy Central, HBO Ole, HBO Asia, TVKO and WB Television Network.
- (10) Aggregate number of units. UDTV uplinks three superstations (WGN, WPIX, KTLA) and six Denver broadcast stations. One household subscribing to six services would be counted as six "units."

- (11) Magazine circulation - includes subscription and newsstand distribution.
- (12) Liberty owns direct and indirect interests in various USAI and Home Shopping Network, Inc. securities which may be converted or exchanged for USAI common stock. Assuming the conversion or exchange of such securities, the conversion or exchange of certain securities owned by Universal Studios, Inc. and certain of its affiliates for USAI common stock Liberty would own approximately 21% of USAI.
- (13) Includes broadcast households and cable subscribers.
- (14) A group of UHF and low power television stations which operate in 12 of the country's top 22 broadcast markets including in 7 of the top 10 markets which reach approximately 31% of TV households in the U.S.
- (15) Liberty and TCI Music have agreed to a transaction whereby Liberty will contribute substantially all of its directly owned Internet and interactive television assets to TCI Music in exchange for approximately 109.5 million newly issued shares of TCI Music Series B common stock, and \$150 million of convertible preferred stock convertible into approximately 25.8 million additional shares of TCI Music Class B common stock, increasing Liberty's ownership of TCI Music from 86% to 95%. Upon completion of the transaction, TCI Music will change its name to Liberty Digital, Inc. The assets listed in this section assume completion of the transaction which is subject to approval of the TCI Music shareholders at a meeting scheduled for September 8, 1999.
- (16) Liberty holds warrants to purchase an additional 7,500,000 shares of common stock. Exercise of the additional warrants would bring Liberty's ownership to approximately 25%.
- (17) Homes in Service Area: The number of homes to which the relevant operating company is permitted by law to offer its services. Not all service areas are granted exclusively to the respective operating company.
- (18) Homes Passed: Homes that can be connected to a cable distribution system without further extension of the distribution network.
- (19) Basic Subscribers: A subscriber to a cable or other television distribution system who receives the basic television service and who is usually charged a flat monthly rate for a specific number of channels.
- (20) Sky Latin America ("Sky") is a satellite-delivered television platform currently serving Mexico, Brazil, Chile and Columbia.
- (21) Less than 1% of voting power. Liberty holds securities of Sprint which are exercisable for or convertible into Sprint PCS Stock.
- (22) In addition to its common stock holdings in GI, Liberty owns warrants to purchase approximately 21.4 million additional shares of GI common stock at \$14.25 per share, subject to certain vesting requirements. Warrants to purchase 4.9 million shares are currently vested. The 21% ownership interest assumes exercise of all vested warrants.
- (23) Options exercisable at prices ranging from \$8 to \$15 over a five-year period.
- (24) Common equivalent shares.
- (25) Options with an average exercise price of \$6.86.
- (26) Liberty has agreed to acquire Associated Group, Inc. for a net issuance by Liberty of 23.2 million shares of LMG.A. The transaction, which is subject to AGI stockholder approval and regulatory approval, is expected to close early in 2000. As part of this transaction, Liberty will acquire approximately 21.4 million shares of Teligent, Inc. (Nasdaq: TGNT).
- (27) Warrants exercisable at \$24.02; expire 11/13/03.
- (28) \$123,314,991 face value convertible at \$30.75 into shares of Series 2 PCS Stock.
- (29) Telewest ADRs, represent 1/10th of the ordinary shares which trade on the London Stock Exchange.

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Multichannel ONLINE

Document 1 of 5: [\[Next Document\]](#) [\[Return to Results List\]](#) [\[New Query\]](#)

NDTC Chief Priddy Sees Set-Top-Box Progress

Laurie Schwartz Priddy took on a big job last month in replacing longtime cable executive David Beddow as president of the National Digital Television Center, now a part of AT&T Broadband & Internet Services (formerly Tele-Communications Inc.). Besides a mandate to boost existing businesses such as Headend in the Sky, Priddy has the major task of shepherding the development and deployment of advanced digital set-top boxes for the nation's largest MSO. Soon after taking her new position, Priddy — most recently head of the OpenCable project at Cable Television Laboratories Inc. — talked with Multichannel News senior broadband editor Bill Menezes about the challenges of her new job and what lies ahead in the coming year.

MCN: Let's start with your move from CableLabs to the NDTC. That's a pretty big change, with a lot of attendant functions that go with running this place. What are some of the challenges in coming over here?

LSP: First of all, I'm really excited to be here. CableLabs was, I will say, my favorite job to date. I really enjoyed working there, and I learned a lot about the industry in a pretty short amount of time. But coming back to a company where you're talking about real bottom-line issues is exciting. And to get into something like the [General Instrument Corp.] DCT-5000 [set-top box] development, which I was watching from the outside, and to come in and get to work on that directly is really exciting.

The other aspect, HITS, I think that there a lot of great opportunities there. They've got a great facility. I think that they've built a great asset for AT&T. And we can turn that into a greater asset for the industry, I think.

And then, all of the work we've done in Peter Douglas' group on HDTV [high-definition television] and on production and origination, I think a lot of that's really exciting. For me, it's all positive, with a lot of great upsides.

MCN: What are some of the things that might be done to turn HITS into a greater asset for the industry?

LSP: I've spent some time talking to [senior vice president of HITS] Rich Fickle, who's been responsible for this for quite a few years now. I share his vision, which is to make HITS more available to companies that are not currently affiliates. We've had some early discussions already with some people who are interested in using HITS as a service.

Industrywide, I think that if we could reach consensus on how to make it an even better product, this would be a good thing. That means looking at issues such as packaging quality and lineup. And I think that those are all things that we're willing to look at and consider to make it more appealing to the industry in general.

MCN: Can you tell me some of the companies that you've been talking to about this?

LSP: I don't think so. Right now, it's really early on.

MCN: You mentioned that you enjoyed coming over to a company with real bottom-line issues. What do you see as some of the key areas that you'll be dealing with in that respect?

LSP: It depends which aspect you're looking at. HITS is operating very well, so you could look at that as an end-to-end business. [Then there's] something like the DCT-5000 development, where I have more experience from what I did at Bell Atlantic [Corp.], where you're looking at creating a platform and a vehicle for developing new services, but one that needs to be economical at the same time. I think that there's going to be a constant challenge to work those issues.

MCN: You'll be spearheading the DCT-5000 effort here, as David Beddow was. Are things on schedule

in terms of testing and development?

LSP: Now that I get to look under the hood, it's an extremely complex platform, primarily for two reasons. One, it provides so many features and capabilities, so I think that it's going to be a very powerful platform when deployed. But it also brings together some interesting partners, as everyone knows. And seeing how they have to play together has been interesting.

GI's making, I think, excellent progress on the hardware platform, for which they're primarily responsible, and everything that I've heard says that they're on track to deliver the hardware. The piece that I need to get more insight into is the software and how we pull all of those pieces together to deliver the platform on time.

So my job over the next month is to meet with each of the vendors and to collectively meet with the program team to understand if there are issues there. It's a little early to comment, but from everything that I can see right now, we are on track to deliver a very interesting platform.

MCN: On the software side, what's your take on the working relationships there?

LSP: I think that there's been a lot of good communication between the partners that are working on the platform. The content providers and software developers are working through a lot of issues at this point. But there's no question that when you take people like Sun [Microsystems Inc.] and Microsoft [Corp.] and put them on the same platform, there are some underlying dynamics there. You have natural competitors working together to create a platform. So it always makes it fun.

MCN: They've been, at least as far as the DCT-5000, been working together for a while. Has it been productive?

LSP: I think that the working teams have been very productive, and that's the important thing. The software manufacturers to date have done a surprisingly good job at meeting their schedules. Their hard part is coming up: Once they get the final ship of the hardware platform, that's when we have to start putting it all together. You know, software generally never meets a target. Everything that I've seen so far says that they've done a great job.

MCN: You mentioned the complexity and capabilities of the DCT-5000. What capabilities will actually be enabled in the initial shipments of the box to AT&T Broadband customers?

LSP: We're working on defining what will be in the first customer ship. It actually will be a very large set, if not the complete set that was planned, which, I think, is impressive.

MCN: What are some of the things that are being considered as part of that set?

LSP: They're still on track with the DOCSIS [Data Over Cable Service Interface Specification] cable modem in the device. There are a whole host of services, depending on who actually signs up to provide the content. You have your narrowband interactive services, which include things like impulse pay-per-view, which I know people are anxious to get out there. We have been looking at some "in-the-box" services, like gaming. So it really is as full-featured as we were told. This means that it's going to be complex in making it all work together. It's going to be a challenge.

MCN: What other types of feedback have subscribers been giving about features that they'd like to see when this capability is available?

LSP: That's something that I haven't had a chance to really get into. I know that there are people over at corporate who are looking at that, and I have seen a matrix of services where they've done a lot of research and focus groups. So one of my goals is to spend more time with them, getting their input into the platform so that we prioritize services for the first customer ship and get the right product out there.

MCN: Is it likely that Microsoft's Windows CE will predominate as far as the operating system that you're going to use?

LSP: We've been working with both Sony [Corp.'s AperiOS] operating system, as well as WinCE. I think that it's probably too early to tell if there will be a predominant operating system.

MCN: What have testing and development results been like?

LSP: It's too early for me to say. I don't know yet.

MCN: Let's talk about the integration of the company's cable-engineering and technical functions under AT&T Broadband executive vice president of engineering Tony Werner that accompanied your move here. What were some of the specific rationales for doing the integration?

LSP: The facility that we have here at the NDTC has done an incredible job of carrying the water on all fronts. It has traditionally been responsible for not only defining the platform, but the services and operational issues, as well. If there's a benefit to bringing us into corporate, I think it's that we can share that load and get input not only from the technologists that are here, but also from the actual operations teams and the marketing groups. I do believe that was happening in the past. I think that this is just a way to maybe define an even clearer process to support corporate buy-in to the final product.

MCN: Was there a sense that more could be done, or are there specific achievements or positives that they expect to emanate from this organization change?

LSP: I think that it's just a sense that if we do get pulled together, it means that it's easier to resolve some issues if we're all in a corporate structure. It means that you don't have to get all the way up to [Liberty Media chairman John] Malone, or perhaps [AT&T Broadband president] Leo [J. Hindery Jr.], to resolve some of that. I think that's a benefit to those gentlemen, who have plenty of things to work on, as well as to the people who are solving the problems, so that they may even get faster decisions. That's not from my experience, not having been here, but more from a traditional organizational theory, if nothing else.

And I also think that Tony's team brings a lot to the party. They have a lot of experience about what it takes to deploy these devices. And if we can get more of that into the planning, then I think that's also a really good benefit.

MCN: What do you perceive is AT&T's vision for this facility and the functions performed here?

LSP: We have a meeting with [AT&T Corp. chairman C. Michael] Armstrong, and I'm sure that we'll learn a little bit more there. I actually haven't had a lot insight to what AT&T's vision is.

I have met with some of the AT&T Labs folks, and I think that they are in synch with a lot of the things that we do here, and that's good. I look forward to getting their input, though. They have a huge staff of people with technical experience that could be beneficial not only to things like the DCT-5000, but to working on things like HITS quality if we maybe wanted to address issues there. [They could also help on] HDTV, certainly. So other than that, I think that it's a little premature to say where AT&T views us.

MCN: Regarding HDTV, what are some of the technical or organizational challenges that AT&T still has to overcome in that area?

LSP: I can talk about it a little bit from my experience at CableLabs, and then I can tell you what I do know about AT&T. On an industry basis, I think that we made a lot of progress last year to work with the broadcasters and understand what the issues are, and to work on the other side with consumer-electronics manufacturers to make sure that we have a good consumer-friendly solution in the home. I feel very good that by the end of last year, everyone was on the same page.

There are still some differences, and people can argue technicalities about things like compression and actual resolution. But as an industry, I think that there's been a lot of support to carry broadcasters' signals in the format that they're transmitted in.

Now, what I do know has been going on at AT&T, and some work that Peter Douglas has been very active in, is understanding what the actual consumer sets will be able to display and what the optimal carriage is for cable, and then trying to bring those two together and demonstrate to the broadcasters that there may be some options besides full-resolution, full-bandwidth -- that the consumer won't be able to tell the difference.

What I've learned in the last week-and-a-half is that there have been a lot of active discussions and demonstrations to the broadcasters. And I think that we might see some changes there that will allow us to provide a high-quality picture that is indistinguishable on a consumer-quality set, but that is much more efficient for the cable networks.

MCN: And the broadcasters seem to have been amenable to seeing what cable says it can produce?

LSP: I think that they've been willing to look and, in fact, that they are perhaps encouraged that there's a compromise.

MCN: What's your sense about the demand by cable customers to actually receive HDTV signals in the near future? Is there an imperative beyond any government timetables to carry digital-broadcasting signals on the systems?

LSP: I think that if there's any imperative, it's probably when we see some of our cable programmers start broadcasting digital signals. I think that we're anxious to be there. For instance, when HBO [Home Box Office] gets started, things like that are very interesting to us, in addition to broadcaster content. And I think that you'll see more demand for some of that content than for retransmission of existing content.

MCN: I get the sense that programmers are running behind in producing that kind of content. Does that go back to the idea that there's not big demand yet for features and picture quality beyond a certain level?

LSP: Personally, and I'm speaking from my viewpoint, it's the content that matters. [Technical] quality is great, but a lot of the programming doesn't necessarily benefit from the extremely high quality that you get from something like HDTV. It may benefit from the digital that we're getting right now to customers, but there's certainly new content that could be created that would really benefit from HDTV, and I think that's where the focus should be.

MCN: What kinds of things would the company like to see in the shorter term along those lines?

LSP: I think that some of the films could be interesting. And when you see people like HBO, that could be an area of content. Also sports. But again, I'm really speaking more for me than I am for the company, in this case.

MCN: Are there any other pressing technical issues that you see that need to be addressed by your area in the first months or year that you're in this role?

LSP: Well, I don't lose my link to the OpenCable process, and we do have a lot of technical issues that we are addressing there. We are still in the throes of resolving copy protection, and I think that one benefit of me moving here is that I can continue to move that process forward and make sure that AT&T continues to support OpenCable as much as it has in the past.

David Beddow was extremely supportive and influential in the OpenCable process, and I look forward to continuing to work with CableLabs on that. It's going to be important — we have a July 2000 date for the point-of-deployment security module, and I need to work very closely with our supplier, GI, to make sure that we meet that date.

MCN: What do you need to do on the POD issue?

LSP: We will follow the OpenCable specification and meet that date. It's a very aggressive date, but we also understand the implications of not meeting that date. We are having discussions with consumer-electronics manufacturers and retailers, and I think that it's great to finally be able to talk to them, and to talk not only about the broad OpenCable issues, but about specific business and technical issues that are important to AT&T. So I think that's also a high priority in the next couple of months.

MCN: How have the consumer-electronics manufacturers been responding? Do they think that the deadline is aggressive?

LSP: They have their half, which is to provide the product at retail, and I think that they think it's an aggressive date. There are some that are more actively involved than others. And I believe that if they want to have a product in that time frame — and I'll say that time frame being July through Christmas 2000 — there will be a definition of an OpenCable product that they can supply. I think that they're encouraged: It's their opportunity to participate in cable, and we have had unprecedented support and cooperation on this project.

MCN: Do you sense that there's an urgency to get a lot of third-party retail deployments for cable modems? How important is it for AT&T to have that retail presence?

LSP: I think that it's important to have both channels. I just had lunch with [AT&T Broadband senior vice president of advanced product deployment] Susan Marshall today, and she's working furiously to get those cable modems deployed. And if we have to do it through the leased mechanism, that's an acceptable approach. I think that we also want to pursue the retail avenue as quickly as possible. So we've got both bases covered. The more that get certified, the better. But I think that we definitely have a plan so that we can reach the numbers that we want to reach, one way or another.

MCN: So it doesn't depend on a greater consumer-electronics presence?

LSP: I don't think that we're going to wait for that. But we're encouraged by the two [manufacturers] that have been certified, and we are anxious to see some more.

MCN: Is it AT&T's plan to have variety of DOCSIS-modem brands available to its customers, or does that start to get a little confusing to mainstream consumers?

LSP: I think that when you're talking about cable modems, given the fact that it's primarily a transport product, the confusion should be minimal, because basically, each one will do the same. I think that when you talk about OpenCable retail devices like set-tops and digital TVs, that's where we're working very closely with the consumer-electronics manufacturers to figure out how best to provide retail devices that are actually offering services directly linked to our headends. It's a slightly different problem and a more complex problem. But when it comes to cable modems, more is probably better, I imagine.

MCN: Coming into this job, what are some of the first things that came into your mind as far as what you'd like to accomplish and the most pressing needs?

LSP: The top priority to me is the DCT-5000: getting that product out into the field with the right set of services deployed, and working with the people at AT&T to make sure that we're meeting the right requirements in getting it out there to meet their schedule. That, to me, is the top priority.

And right next to it is using the work that we're doing here in conjunction with the OpenCable process to reach some industry standards, because I think it's really important that we work together as an industry. We have an opportunity here to take advantage of things like the Internet, rapid application development and early service deployment, which can give us an extreme competitive advantage over people like satellite and xDSL [digital-subscriber-line] products. I think that it's a mistake if we're not working hand-in-hand with the other cable operators to make sure that we can roll out national services.

One of the challenges for OpenCable has been that we have different systems and we offer different services, and it's important that we reach agreement on a technical standard. So that if [AT&T Broadband] is offering a service, and it wants to make that available to a customer who moves to another cable operator, we can do that through the right networking solutions and the right devices in the home, as well as the right business arrangements.

I've had a number of discussions with other cable operators since I've taken the position, and I think that there's a lot of energy to get together and look at creating some industry standards that will help us to take advantage of that position.

MCN: Is that more important to the larger MSOs?

LSP: I think that the smaller operators actually benefit more, because they can then take advantage of a platform. For instance, if retail is successful for OpenCable, it will give them an opportunity to get their customers some more advanced devices at a reasonable cost. And they can also tap into the resources used by the larger customers to create the services. So you can imagine that there are some ways that it could really help the small operators a great deal. But in the end, the customer's the one who's going to get a better experience.

MCN: Were you given any mandates when you came here?

LSP: Sell more HITS [laughs]. I think that we're anxious, as I said earlier, to make HITS even more attractive. I think that it's been a great success, and I want to say that I think Rich has done a fantastic job making it a great product. I just want to make it better and more attractive.

MCN: What are some of the ways that it might be made more attractive?

LSP: Some of it is looking at the way that we package it and the way that we promote it. I think that there's been some concern about quality, but if you look at the past 12 months, I think that most of those have been worked out. I know that [Fickle's] already in a number of discussions that I can't talk about now that sort of address that issue of making it more of an industrywide asset.

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New OpenCable Director Seeks Common Ground

The industry's OpenCable initiative to foster interoperability of digital set-top boxes from different manufacturers is approaching some significant milestones, with interoperability testing about to begin and the completion of some important standards within sight. As the project enters the homestretch of its race to see OpenCable consumer products in the market by mid-2000, the project's new director, Lisa Lee, faces a number of issues. These range from testing logistics to helping to achieve consensus on matters such as the best way to employ copyright protection for digital programming. Lee -- whose career has included executive positions in systems and networks areas of MCI WorldCom, Sprint Corp. and Excel Communications Inc. -- recently succeeded Laurie Schwartz Priddy as director of OpenCable after Priddy became president of AT&T Broadband & Internet Services' National Digital Television Center. She recently spoke with Multichannel News senior broadband editor Bill Menezes about the progress of OpenCable and some of the work ahead.

MCN: You're coming over at a pretty significant time in the OpenCable process. What are your thoughts coming in about what you need to do and the challenges you see in terms of advancing the process?

LL: I personally view it as a very exciting time to be joining the OpenCable program. It's in the middle of development, but there are still a lot of things that have to happen for it to be successful.

I think in terms of the challenges and the areas of focus, it's really on continuing to get all of the industries and companies to work together, each looking at their own business models and their own challenges and trying to find win-win situations for everyone along the way.

If you look at the number of companies that are involved and the number of industries -- looking at coordinating cable efforts, working with the CEMA [Consumer Electronics Manufacturers Association], working with the NAB [National Association of Broadcasters], the NCTA [National Cable Television Association], the retailers, the MPAA [Motion Picture Association of America], and each of those having lots of companies underneath them -- I think the real challenge is a communications challenge in keeping open dialogue among the various participants.

MCN: There are more than 300 participants now. I assume it gets more difficult, and better at the same time, as more companies come on board?

LL: That's actually true: It's more difficult in terms of trying to get people to come to consensus, but you get lots of invigorating, innovative ideas as more people join the process.

MCN: Let's talk about where the process is right now, what's been completed and what it's going to take to get the rest done.

LL: I couldn't review all of the specifications with you because there are lots and lots of them, and it seems like every week, there may be new things that different vendors want to enter into the process as a specification.

In terms of the major ones, the POD [point-of-deployment security module] interface was completed.

We're currently working on the copy-protection component of that, which we're planning on putting through ballots in the June SCTE [Society of Cable Telecommunications Engineers] meetings.

We're working through the SCTE standards process for our specifications. It's being drafted by a subcommittee, and then actually being submitted to the SCTE DVS [Digital Video Subcommittee]. We're also adopting other industry standards where we can and where it makes sense.

The POD specification has been approved, but not adopted yet. It's waiting for the copy-protection component, which is actually a separate specification. They approved the POD-interface specification as long as we got the copy-protection specification -- the two specifications are tied.

MCN: The NCTA and the CEMA sent a letter a couple of months ago to Federal Communications Commission chairman William Kennard, assuring him that they were making substantial progress on areas such as copy protection. Is there still work to be done with the CEMA on these issues?

LL: Sure, we'll be working with the consumer-electronics side all the way up through and including deployment -- any time you have something this big, and there are so many different components coming together.

In fact, some of the specifications there now, I'm positive we'll modify as we go into some of our actual testing. You've got the best ideas coming together with every specification. You learn things as things actually become real products. So I'm positive that we'll actually be modifying some of them when we go into the actual interop process.

And we are working very closely with the whole consumer-electronics industry on the specifications. I think specifically, they were probably referring to the POD interface.

Our functional requirements are very close to getting their buy-off -- we have one last component that we're working on right now, which are some performance parameters to make sure that what the consumer gets in the end is successful. Hopefully, more than successful -- hopefully, it will delight them in the end.

MCN: They were also talking about 1394, the 'fire-wire' device interface.

LL: 1394 was actually approved by the ITU [International Telecommunications Union] standards committee in May, and it looks like it will be through its final process in September, and like that's going to move forward.

MCN: So there aren't any issues between cable and the consumer-electronics industry as far as how they're going to work together?

LL: I wouldn't go as far as to say that. I would say I believe that all the way up through implementation, because it's a new standard, it will be revised.

MCN: Is the same true for copy protection?

LL: The cable industry has adopted '5-C' copy protection, and the reason why we adopted it is because that's the copy protection the MPAA is behind. We've got a specification right now that we plan to put on the ballot in the June time frame. There are still some open issues on it, but we hope it will pass the June ballot.

MCN: What's the consumer-electronics industry's perspective on using the 5-C scheme?

LL: Mixed. Different vendors in the consumer-electronics industry have different vested interests.

Everyone really wants their own standard used.

MCN: How do you come to common ground on that?

LL: In the end, if you look at the fact that all of us want to carry content across the network -- ultimately, to a television set -- and the MPAA has the content, the only way they're going to buy into it is if they feel like their content can't be pirated.

And I think most of the vendors have accepted that. It doesn't mean that all of them like it, but I think most of them have accepted that, and we certainly aren't going to connect back to the network unless we make sure that we've protected one of our customers.

MCN: It sounds like you expect the consumer-electronics industry to have to move closer to what the cable industry and the MPAA have agreed upon.

LL: I think they already have, and we're working very closely on the open issues that are left. So while there is still some contention ... I don't see any showstoppers there.

MCN: What are some of the open issues?

LL: Some of them are even just clarifications. Some of them are, 'Gosh, why did you choose this?' So we're sorting through some of that.

When you look at how many vendors we have in the overall process, any time you introduce some new kind of technology or some new solution, there are always going to be questions, and you might have an issue or two with any of the specifications that somebody puts forward. But I don't see any major showstoppers.

MCN: The letter to the FCC also addressed the area of integrated TV sets that incorporate set-top features without separate boxes. Is that going to progress separately, or in tandem with the other areas?

LL: We're actually breaking off the specifications between set-top boxes and integrated TVs. There are some requirements of the set-top box that may not be on the TV because the components are integrated, so you don't have to worry about set-top boxes interfacing with the TV exactly the same way.

But some vendors are going to come into our interops testing with integrated TV sets. In fact, I believe that in our July one, it looks like at least one vendor will come in with an integrated television set -- at least they're trying very hard to. If they don't hit July, they'll hit very shortly afterward.

We have some vendors with the goal of not even going out with a set-top box, but going out with an integrated TV set.

MCN: By July 2000, or in advance of that?

LL: It's hard to tell at this point until we get through the whole certification process. I would say that their target is to go out with OpenCable, though, by then.

MCN: Interoperability testing starts in July. How many vendors are lined up to go through that?

LL: The target for the first phase of testing is really our POD or security-module testing, so it's the first time really to test that. It looks like five or six vendors will be coming in with POD solutions. They'll also be bringing in integrated TVs or set-top boxes.

But there are different components of the whole thing. So you've got your headend access, you've got your POD, you've got the set-top box and you've got conditional access that goes on top of that. The total number of vendors will probably be around 15 to 20, with about five or six doing an end-to-end solution.

This is really for the POD vendors -- they're responsible for bringing in their partners as a part of this. Most of them are partnering with other vendors.

MCN: How will the testing work? Will it be similar to DOCSIS certification?

LL: We're still trying to determine the whole certification process. This July is really the very initial phase -- just looking at the security module. As we move into later this year, we'll work between our industries to come up with an agreed-upon certification process.

The lab that we're providing this summer is really kind of an incubator, and also for us to get a chance to see how close the vendors are to actually meeting the first set of requirements.

MCN: When you start giving certifications, what is it going to say to consumers?

LL: That's the piece we're really trying to work through right now. What we'd like to do is that once someone becomes certified, we want to make sure that from the consumers' perspective, when they purchase something that's been what we'd call OpenCable-certified, or cable-certified, or CableLabs-certified [Cable Television Laboratories Inc.], or whatever the terminology is that we use around it, it works, and we're comfortable that it works with our networks and interfaces with our networks. The challenge is that the number of vendors and the amount of components are very complex.

MCN: Do different vendors want to convey different things from certification?

Are you getting different ideas, for example, about what to call it?

LL: We haven't really started discussions on what even to call it. In another month or two, I'd be more than happy to give you an update on what we've decided.

MCN: Is testing going to run in stages? Are you going to be able to handle everybody at once, or will it run in waves like DOCSIS?

LL: It will probably be in stages and in waves. We have different stages of testing at different times throughout next year. It certainly will be a scheduling challenge with all of the vendors and trying to make sure that they can all actually hook up with the network equipment, and that there is interoperability between components.

MCN: Are you going to have to expand the infrastructure available for testing?

LL: We're in the process of expanding it right now for the interops testing. In terms of how we staff it, that's still being determined. I believe CableLabs will run the overall process, and we are bringing additional equipment right now to begin that.

MCN: I'm wondering about physical space, as well. Are you looking at other facilities, too?

LL: We've actually sat down with our facilities department and kind of helped to plan. Now, what we've got to do is look at the timing of our lab testing versus PacketCable testing and DOCSIS testing.

We actually believe that we'll be able to share some equipment, and even share some lab space, depending on what kind of testing is going on and when. We're kind of putting together an overall master plan. So far, it's been really good.

MCN: The hard deadline puts OpenCable in a different boat than DOCSIS. Given the vagaries of things that could happen in testing, how difficult will it be for manufacturers to get testing and certification done in time?

LL: It's going to be a challenge. Some of the manufacturers are actually leveraging some equipment they have today, though. Some of them are coming up with brand-new equipment, while some are leveraging equipment they have and adding in the security interfaces and some additional feature functions.

So I think some of the testing for some of the manufacturers will be stringent and have a longer cycle than testing for some of the vendors that are able to leverage something they already have.

MCN: Your background covers a lot of work in intelligent networks and customer-service systems. Will there be a lot of differences in working with OpenCable?

LL: There are a lot of similarities, if you look at the fact that there are networks. I actually sat down one day with Laurie Priddy, who came from a telecommunications background. We're sitting there one day, looking at cable-architecture diagrams, and she said, 'You know, this is a CO [central office] in the telecom world, but this is a headend in our world.' I said, 'OK, now I get it.' She took the whole diagram and put it in telecom terms that made it click just like that.

There are some technical differences, but my background helps a lot, too, particularly when you look at something like deploying a new generation of set-top boxes. I've been on the operational side of networks. I designed new intelligent-network elements. I understand if someone says, 'I'm worried about having two-way access and whether or not they can actually flood my network.' The truth is, technically, they can.

People who haven't been in that kind of a world before don't necessarily understand that or believe that it's real. I know that it is. It's not a fun thing to experience.

MCN: Are there a lot of cultural differences, or are those minimized on the technical side of the business?

LL: There certainly are some cultural differences. But I think there are a lot of similarities in terms of both industries moving at lightning speed and being surrounded by technology that's moving at lightning speed -- and in the need to make sure at the end that there's a solid business model and that the technologies work.

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Wednesday, July 14, 1999

INTERNET SERVICE COMPETITION
C. MICHAEL ARMSTRONG

Written Statement of C. Michael Armstrong

Chairman and CEO, AT&T Corp.

Before the Senate Judiciary Committee

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Mr. Chairman and Members of the Committee, I'm pleased to have this opportunity today to testify about broadband technology and the communications revolution that it will bring to American consumers. It is a revolution that promises to transform the way we communicate, entertain, inform and educate ourselves. It will provide the foundation for a whole new generation of communications, information and entertainment services.

AT&T intends to play its part in these changes. It's what our cable mergers and acquisitions have been all about. Last year, I testified about our plans to purchase TCI, which we closed in March 1999. I'm delighted to tell you that we have already begun to deliver on our commitment to bring choice - and a better deal --- to residential local telephone consumers through TCI's cable plant. In Fremont, California, we are now offering cable lines for telephony: one for Mom, one for Dad, one for the kids, one for the fax or PC. Each line with its own distinctive ring, and for only \$11.00 per line for the first line and \$5.00 per line for each additional line, compared to the \$11.25 per month Southwest Bell currently charges in California for each and every line a customer buys. And, we're on target to bring our cable telephony offer to consumers in Salt Lake City, Detroit, Pittsburgh and other cities within the year.

As we implement our plans, consumers will see big changes. Let me bring them home - to your home and mine. Start with the capabilities

digital cable will provide your family. The cable box on your TV will not only deliver hundreds of channels and movies - it will be a virtual communications center. When you come home, you'll turn on the TV, the PC or telephone - which one is up to you - to retrieve your e-mail, voice messages or fax. If you want to get onto the Internet, the cable box will give you access at speeds a hundred times faster than 28 kbps modems. You'll always be online: no need to dial up and wait for your computer to connect. That same cable line that brings TV and the Internet into your home will give you multiple telephone lines. And, customers will get all this at lower prices for telephone and Internet services than they pay today. That's what competition delivers.

With our rollouts to customers in TCI territories underway, AT&T recently announced its agreement to purchase the MediaOne cable systems for \$58 billion dollars in cash and AT&T stock. Our merger with MediaOne just like our earlier acquisition of TCI -will mean that far more American consumers will have a choice in local phone service and the opportunity to enjoy high speed Internet services. With MediaOne, AT&T will gain immediate access - and the ability to provide competitive, facilities- based local exchange services - to millions of consumers in service areas where we currently have no facilities. Together, MediaOne and AT&T will bring video, voice and data services to these communities more quickly than we could separately.

With over \$100 billion in acquisitions to bring this communications revolution to American families, we've demonstrated that AT&T is willing to make the investments necessary to compete in the local services market. But, even with this downpayment, there is still a lot of work to do.

AT&T's combination with MediaOne will give us owned and operated systems passing about 26 million homes in 18 of the nation's top 20 markets. That's about 26 percent of American homes. While we are hopeful this will give us a base from which to negotiate joint ventures with other cable companies to reach more of our customers -- who reside in every neighborhood across America --we do not have the reach of our telephony competitors.

The MediaOne merger will give us some of the scale we need to compete with the larger and more powerful local exchange company monopolies. But, from the outset, the pending Bell mergers will create combined companies that already serve far greater numbers of customers than AT&T has the potential to serve with our cable telephony plant. While we begin with virtually no share of the local market and the opportunity to win customers, SBC/PacBell/Ameritech will begin operations serving

every customer within its territory, about 40% of the total U.S. population (or one-third of all U.S. access lines). Similarly, Bell Atlantic/GTE will start with a customer base of about 35% of all U.S. access lines.

As the FCC reviews AT&T's merger with MediaOne, we will ask them to consider these facts and the role cable is playing in local service competition. The opportunity is now ripe for the FCC to harmonize the now-outdated and suspended horizontal ownership limitations with the goals of the 1996 Telecom Act. Simply put, limiting the scope of AT&T's cable coverage would limit the growth of competition in the local telephony market.

Of course, the FCC will also look to the original purpose of the ownership rules: to prevent abuses in the control of video programming by cable companies. The suspended rules pre-date the era of digital television and the explosive growth in programming capacity that goes with it. Similarly, they do not reflect the now ubiquitous scope of direct broadcasting satellite (DBS) firms, or the role DBS firms will play in the programming market as their competitive position is bolstered by the passage of the pending Satellite Home Viewer Act. If enacted, DBS firms, for the first time, will have the opportunity to offer video and local broadcast packages on par with cable programming that will inevitably expand their subscribership. The substantial increase in the number of programming outlets created by these technological and market changes inevitably will diminish any potential for monopsony power over programming by cable systems.

Let me also make clear that AT&T is not primarily in the content business. We're in the communications business. We're distributors. So we want to encourage as much content as possible. **That's why AT&T structured its broadband architecture for maximum openness to content providers. Our open software platform is designed to encourage content providers, for the simple reason that the more content we can carry, the more attractive our services will be to our customers. We are not primarily interested in owning content, but in packaging other people's content to our customers in the forms they want and at attractive prices.**

And that's exactly why AT&T negotiated a very pro-competitive relationship with Microsoft. Under our non-exclusive agreement with Microsoft, AT&T agreed to expand its Windows CE-based license to cover an additional 2.5 million to 5 million digital set-top devices, which will enable applications from a number of companies to deliver communications, entertainment and information services. The Microsoft

set-top box software will provide an open environment for the creation of services and applications. **Microsoft is required by our contract to disclose all Application Programming Interfaces (APIs) that it or any other firm uses in the software.** This means that any firm will have the technical ability to create services and applications that work with the Microsoft software and that Microsoft will not have any advantage through the use of undisclosed APIs.

AT&T made no commitment to deploy the Microsoft set-top box software that it licensed, except in three showcase cities. In the third showcase city, Microsoft is obligated to work with AT&T to deploy Microsoft set-top box software together with a third party's server software. **We'll also buy hardware and software from multiple vendors. In fact, we have already signed agreements with Sun Microsystems and Sony for use of their software products in digital set-top boxes.**

As an endorsement of our broadband strategy, Microsoft has also made a \$5 billion passive investment in AT&T, amounting to approximately a 3% equity stake in the company. There are no board seats or other dependencies involved in the arrangement. The investment in AT&T by Microsoft will be used to accelerate the upgrade of AT&T's cable networks. That means quicker delivery of the competitive local telephone service, digital television, and high-speed Internet access we've promised to customers.

Now, I can't leave the question of open systems without mentioning the issue of cable unbundling - particularly since I know some of you have been considering this issue. Contrary to some of the rhetoric, our cable networks are not closed. Our customers enjoy open systems in terms of content. Our broadband Internet customers can access any non-proprietary site, portal, or online service on the Internet with one click of the mouse at higher speed and with better quality than they could before.

We also will continue to meet our customers' demands for whatever content they want to reach on the Net, in partnership with Excite Home, RoadRunner or others. But we will make these arrangements on the basis of sound commercial relationships. These commercial relationships will recognize the economic, contractual and technical realities that are part of doing business.

And, while we will ensure that our customers will have the access to the programs they want to see, we will also make sure that they have the control over the programs they don't want to see and the information they choose to keep private. This includes giving parents the tools they need to protect their children from objectionable content in their

homes. And, it also means keeping personal information private through systems with adequate safeguards and privacy practices that give consumers confidence.

In the end, as I see it, there is no basis for government intervention in any of these areas: the market should make the choice, competition should spur development and customers will determine what they want.

Already the market is proving this right. Since AT&T unveiled its investment in TCI, deployment of multiple broadband pipes and all types of advanced broadband services has skyrocketed. The appearance of cable modem competition has begun to make the phone companies get serious about broadband capacity of their own. Look at the way the Bells and GTE have responded. They have had the capability to deploy digital subscriber line (DSL) technology, which offers broadband over ordinary telephone lines, for a decade. But they only began to deploy it and lower their prices in response to the emerging competition from AT&T. In fact, they're deploying broadband capabilities throughout their territories far more quickly than anyone anticipated even a year ago. From ground-zero just a year ago, Bell and GTE will convert about 31 million of their existing copper loops to DSL-capable loops by the end of 1999. This will grow to 94 million lines within the Bell companies' and GTE's territories by 2002. There's nothing like the sight of a determined competitor on the horizon to make dyed-in-the wool monopolists get religion about serving customers with new technology.

And, while the deployment of these new technologies hold great promise, we all must ensure that all Americans are part of this bright future. We cannot allow any American to be left behind. As AT&T deploys its all-distance, broadband service through its cable properties, we will do so in every neighborhood - urban, suburban or rural -- served by our cable systems. And, there is evidence already that broadband service deployment is not and will not be limited to major cities. Smaller independent telephone companies serving rural areas are entering the race. Home Telephone Company, based in Jacob, Illinois, has introduced its Supernet service providing Internet access and speeds up to 50 times faster than 28.8 kbps modems. Buckland Telephone, serving 2000 access lines throughout three counties in Ohio, has begun to roll out its DSL service, starting with Wapakoneta, Ohio. Panhandle Telephone in Oklahoma is also deploying ADSL in approximately 11 areas throughout its service territory. HunTel Systems, based in Blair, Nebraska, has plans to introduce DSL service to Washington County, Nebraska early next year. DSL access is also being offered in Harrison, Arkansas; Sergeants Bluff, Iowa; Winthrop, Maine; and Kamas, Utah.

AOL, which today serves about 60% of Internet subscribers, has also stepped up its efforts to use DSL to deliver new broadband services. By the fall of this year, as a result of its deals with Bell Atlantic and SBC, AOL will have a broadband AOL offer available across 50% percent of its customer base in 21 states. AOL also recently announced a series of agreements with DirecTV, Hughes Network Systems, Phillips Electronics and Network Computer, to develop a broadband AOL-TV offer that will make AOL accessible through the television. Similarly, MindSpring, another large ISP, has made a DSL deal with BellSouth and Prodigy has teamed up with Bell Atlantic to offer their customers high speed DSL Internet access.

Satellite and wireless firms are also bringing more broadband pipes to homes and businesses. Hughes is investing \$1.4 billion in Spaceway, a two-way satellite broadband service it plans to deploy by 2002. AOL has also agreed to invest \$1.5 billion to help fund Hughes' plan to offer Internet access via its satellite systems and it will market AOL broadband service nationwide via Hughes DirecPC service by early 2000. And, Teligent and Winstar are deploying broadband access using wireless networks in markets across the country.

Congress well understood the powerful relationship between competition and innovation when it passed the Telecommunications Act of 1996. It understood that innovation needs the spur of a competitive market. That's why Congress mandated that the market for local telephone service be opened to competition. And, that's also why Congress decided to treat new entrants and cable facilities differently than the incumbent Bells. Congress was counting on cable as a second wire to the home to give consumers a choice in local phone service and to deliver the advanced services you expect in a competitive market. AT&T's cable purchases are designed to do just that. And, now, in response to AT&T's investment and innovation, other companies are building a variety of other broadband paths to homes and businesses across the country.

But I don't mean to imply that all you have to do is stand back -and let the future unfold. I can't think of a single revolution in history that worked that way.

AT&T has demonstrated its willingness to compete in the local service market, but our cable systems will never reach every one of the 100 million households in America or every one of the 61 million AT&T long distance families we serve. Today, to offer local service in the majority of communities, we will need to rent the local telephone companies' wires if they are economically and operationally viable. And even where we do own and operate cable systems, we will need the local

telephone company's cooperation in switching customers from their network to ours.

That's what the Telecommunications Act of 1996 was all about.

Congress recognized that it wouldn't be easy to cajole the Bell companies to give up a regulated revenue stream they'd had for almost a century. So it included an inducement for the Bells to cooperate. It established the quid pro quo that the Bells could get into the long distance market once real competition is established in the local services market.

Why hasn't this happened yet? For one thing, we all under-estimated the practical difficulties of opening up such a huge, technically complex market to competition. And for another, too much time and energy were consumed in litigation after the Act was passed. That litigation seems to have run its course, and the Telecom Act is still intact. More important, I hope that some of the Bell companies now recognize not only the inevitability of local competition but its desirability as well.

From the consumer's perspective, the desirability of local competition is obvious. The faster the flywheel of competition and technology spins, the more consumers have to show for it. Local competition will stimulate new investment and new services. Consumers will get the classic benefits of a competitive market--- more choice, lower prices and better value.

These benefits are close at hand. But close isn't good enough. To finish the job, the FCC must re-establish the obligation of the Bell companies to provide all of the unbundled network elements (UNEs), individually and in combination, and including DSL-capable loops.

Second, the obligations on the Bell companies under the Act to price unbundled network elements and access based on cost must be diligently applied and vigorously enforced. If the Bell companies agree to economically viable rates in setting their wholesale prices for network elements and establish operational systems to implement them, you can count on AT&T to buy capacity on their networks to offer local service. That will be the fastest route to bringing a competitive choice to millions of consumers. But I can also promise you that AT&T will not show up in any community where the Bell's wholesale prices are too high or the operational systems endanger a customer's service.

We've been down that road before. In the rush to get into the market after the Telecom Act was passed, AT&T in 1997 resold the Bell companies' service in a number of states. The wholesale prices were so

high, we lost money on every customer -- \$3 billion in all. The more customers we won, the more money we lost. You don't need an MBA to know that's no way to do business. And we won't.

We learned something else in that experience - changing local service companies should be as easy, and as certain, as changing long distance companies. But it wasn't in 1997, and it isn't now. We learned then that our customers had to wait weeks to switch, some lost dial tone and 911 availability. Our business customers were dropped from directory services.

And that brings me to the next plank of my agenda for consumer choice. It concerns all the back-office computer systems necessary to introduce competition to a local network. These systems handle the thousands of individual tasks necessary to provide local phone service - they track orders, coordinate circuit provisioning, dispatch trucks, render bills. They are the joint responsibility of the incumbent local companies and the new local competitors, including AT&T.

With the right systems in place, customers can switch from a Bell company to another provider easily, without having service disrupted, or access to 911 cut off, and without being dropped from the telephone directory listings.

That's why metrics for system performance and consumer quality and safety should be adopted and applied. Systems should be tested against those standards by a neutral third party. And there should be a real market test before we put all the consumers of a state at risk.

Finally, consumer choice in local services requires that we take access charges down to cost. Everybody in this room pays access charges, although you won't find them on your phone bill. Local phone companies charge an average of about 4 cents per minute to complete both ends of a long distance call. Economists say the actual cost is less than a penny a minute.

Now, the local phone companies didn't invent this system. It's a holdover from the old Bell System days when long distance and business services subsidized local service. But that kind of pricing amounts to a hidden tax that costs long distance callers \$10 billion a year in unnecessary interstate access charges.

To be fair, the Bells might say their mark-up is considerably less than that and they still need the revenue to hold down the cost of local service. And we must recognize that access charges are some part cost

reimbursement and a large part pure profit to the local company - a holdover from another era.

My purpose is not to continue this argument here. Quite the opposite. I want to see it ended once and for all. We need a comprehensive restructuring of access charges that eliminates all the subsidies once and for all, giving American consumers a multi-billion dollar tax cut.

Let me sum up: AT&T's merger with MediaOne will offer more customers more choice for local telephony service and new broadband services at lower prices and faster speeds. Through cable, we will offer residential customers the first real alternative to the incumbent monopolies. Already our entry on the horizon has sparked competitive responses in the delivery of new broadband services from the Bells, GTE, Internet Service Providers, and others.

But, while we are making tremendous strides in the deployment of broadband across all of America, we have a long way to go to break open the local services telephony monopoly of the incumbent local exchange companies. The Bells and GTE provide local exchange service to 97% of the customers in their territories. They have litigated all the way to the Supreme Court to avoid complying with the Telecom Act. And, although that litigation seems to have run its course, the Bells and GTE now are asking Congress to reward their recalcitrance by making exceptions in the Act. Following that path will leave consumers out in the cold as the incumbents lose all incentive to comply with the Act.

My message is simple: Stay the course. Let's get on with enforcement of the Act, and finish the business that finally will bring American consumers the fruits of your labor. We'll all know when we've achieved success:

Consumers will have a choice of local companies

Consumers will have a choice of local services

Consumers will have a choice of local prices

And they will be able to switch local companies and services as quickly as they can switch long distance companies and services.

The communications revolution is coming, driven forward by the forces of competition and technology. The only question now is whether decision-makers, both public and private, will speed the process along.